

REMARKS

Applicants respectfully request reconsideration of the present U.S. Patent application. Claim 1 has been amended. No claims have been added or canceled. Thus, claims 1-21 are pending.

Objection to the Specification

The specification was objected to for various informalities. The informalities have been corrected as suggested in the Office Action. Therefore, Applicants request that the objection to the specification be withdrawn.

Claim Rejections - 35 U.S.C. § 102(e)

Claims 1-5, 8, 10, 11, 13, 14, 17 and 19-21 were rejected as being anticipated by U.S. Publication No. 2002/3385567 of Ku, et al. (*Ku*). For at least the reasons set forth below, Applicants submit that claims 1-5, 8, 10, 11, 13, 14, 17 and 19-21 are not anticipated by *Ku*.

Claim 1 recites the following:

A network switch having an asynchronous mesh to transfer data from ingress interfaces to egress interfaces, the ingress interfaces to receive data from external sources and to selectively and asynchronously transmit the data across the asynchronous mesh to the egress interfaces, the egress interfaces to receive data from the asynchronous mesh and to transmit the data to external destinations.

Thus, Applicants claim asynchronously transmitting data across a mesh in a network switch.

Ku discloses a mesh connection within a switch. See Figure 5. However, the mesh of *Ku* is not an asynchronous mesh. In contrast to the claimed invention, *Ku* discloses a synchronous mesh. Specifically, *Ku* discloses:

Program flow then moves to a state 732, in which the *master scheduler* 622 arbitrates among packets readies for retransmission by the schedulers 620.

See page 9, paragraph 99. *A master scheduler is only necessary in a synchronous system in which transmissions are carefully coordinated between ports*. Therefore, *Ku* does not anticipate the invention as claimed in claim 1.

Claims 2-5, 8 and 10 depend from claim 1. Because dependent claims include the limitations of the claims from which they depend, Applicants submit that claims 2-5, 8 and 10 are not anticipated by *Ku* for at least the reasons set forth above.

Claim 11 recites the following:

a plurality of ingress cards, the plurality of ingress cards having an ingress buffer to temporarily store data, an ingress scheduler coupled to the ingress buffer, and a plurality of ports coupled to the ingress scheduler, the ingress scheduler to read data from the ingress buffer and to selectively transfer the data to one of the plurality of ports; and

a plurality of egress cards, the plurality of egress cards having a plurality of ports coupled to receive data from respective ingress card ports, an egress buffer coupled to the plurality of ports, the egress buffer to selectively read data from the plurality of ports and to store the data, and an egress scheduler coupled to the egress buffer, the egress scheduler to read data from the egress buffer and to transmit data from the egress card.

Thus, Applicants claim a plurality of ingress schedulers and a plurality of egress schedulers.

Ku discloses a plurality of ingress schedulers coupled to a master scheduler that coordinates the ingress schedulers. See Figure 6. *Ku* does not disclose a plurality of ingress schedulers and a plurality of egress schedulers. Therefore, *Ku* does not anticipate the invention as claimed in claim 11.

Claims 13, 14 and 17 depend from claim 11. Because dependent claims include the limitations of the claims from which they depend, Applicants submit that claims 13, 14 and 17 are not anticipated by *Ku* for at least the reasons set forth above.

Claim 19 recites the following:

N ingress cards coupled to receive data from external sources, the N ingress cards having a plurality of ports to transmit data, wherein each of the N ingress cards comprises an ingress scheduler coupled to the ports of the ingress card, the ingress scheduler to cause data to be selectively and asynchronously transmitted via the ports of the ingress card; and

M egress cards having ports coupled to receive data from one or more of the plurality of ports of the N ingress cards, the egress cards coupled to transmit data to external destinations, wherein each of the M egress cards comprises an egress scheduler coupled to the ports of the egress card, the egress scheduler to cause data to be selectively transmitted to the external destinations.

Thus, Applicants claim a plurality of ingress schedulers and a plurality of egress schedulers. Claims 20 and 21 depend from claim 19.

As mentioned above, *Ku* does not disclose a plurality of ingress schedulers and a plurality of egress schedulers. Therefore, *Ku* does not anticipate the invention as claimed in claims 19-21.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 6, 7, 9 and 15 were rejected as being unpatentable over *Ku* in view of U.S. Patent No. 6,201,809 issued to Lewin, et al. (*Lewin*). Claims 6, 7 and 9 depend from claim 1. Claim 15 depends from claim 11. The shortcomings of *Ku* with respect to independent claims 1 and 11 is provided above. *Lewin* is cited to teach preventing access to buffers and queues when output ports become congested. However, *Lewin* does not cure the deficiencies of *Ku*. Therefore, no combination of *Ku* and *Lewin* renders claims 6, 7, 9 and 15 obvious.

Claim 12 was rejected as being unpatentable over *Ku* in view of U.S. Patent No. 5,889,778 issued to Huscroft, et al. (*Huscroft*). Claim 12 depends from claim 11 discussed above. *Huscroft* is cited to teach a FIFO buffer to receive data. However, whether or not *Huscroft* discloses a FIFO buffer, *Huscroft* does not cure the deficiencies of *Ku*. Therefore, no combination of *Ku* and *Huscroft* renders claim 12 obvious.

Claim 16 was rejected as being unpatentable over *Ku* in view of U.S. Patent No. 6,151,300 issued to Hunt, et al. (*Hunt*). Claim 16 depends from claim 11 discussed above. *Hunt* is cited to teach retransmission of data. However, whether or not *Hunt* discloses retransmission of data, *Hunt* does not cure the deficiencies of *Ku*. Therefore, no combination of *Ku* and *Hunt* renders claim 16 obvious.

Claim 18 was rejected as being unpatentable over *Ku* in view of U.S. Patent No. 6,154,446 issued to Kadambi, et al. (*Kadambi*). Claim 18 depends from claim 11 discussed above. *Kadambi* is cited to teach storage of data according to an associated class. However, whether or not *Kadambi* discloses storage of data according to an associated class, *Kadambi* does not cure the deficiencies of *Ku*. Therefore, no combination of *Ku* and *Kadambi* renders claim 18 obvious.

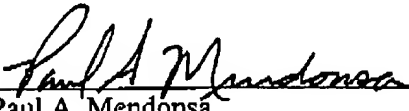
Conclusion

For at least the foregoing reasons, Applicants submit that the rejections have been overcome. Therefore, claims 1-21 are in condition for allowance and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the present application.

Please charge any shortages and credit any overcharges to our Deposit Account
number 02-2666.

Respectfully submitted,
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MARKED VERSION OF THE AMENDMENTSIN THE SPECIFICATION

In paragraph 0011 on page 6:

Switch 110 is coupled to router/host 100, network 102, network 106 [104] and router/host 104. Any number of devices can be coupled to switch 110 in any manner known in the art. Similarly, router/host 122, network 124, network 128 [126] and router/host 126 [128] are coupled to switch 120. Any number of devices [device] can be coupled to switch 120 in any manner known in the art.

In paragraph 0019 on page 8:

In one embodiment, each ingress card is coupled to each egress card, the interconnection between the ingress cards and the egress cards has n^2 connections where n is the number of ingress/egress cards. Thus, the interconnection is referred to as an " n^2 mesh," or an " n^2 switching fabric." In another embodiment, the number of ingress cards is not equal to the number of egress cards, which is referred to as a " $n \times m$ mesh." The mesh is described in greater detail in U.S. Patent application number 09/746,212 [____], entitled "A FULL MESH INTERCONNECT BACKPLANE ARCHITECTURE," filed December 22, 2000, which is assigned to the corporate assignee of the present application and incorporated by reference.

In paragraph 0020 on page 8:

In one embodiment, traffic crosses the mesh, or switching fabric, in an asynchronous manner in that no central clock signal drives data across the mesh. Data is transmitted by the ingress cards without reference to a bus or mesh clock or frame synchronization signal. A protocol for use in communicating over the mesh is described in greater detail in U.S. Patent application number 09/745,982 [(P005) ____], entitled "A BACKPLANE PROTOCOL," filed December 22, 2000, which is assigned to the corporate assignee of the present invention and incorporated by reference.

In paragraph 0029 on page 11:

Data received from the egress card ports is [in] stored in the egress buffer. In one embodiment, the egress buffer includes a cache for each link (i.e., link between ingress card 2 and egress card 2, link between

ingress card 3 and egress card 2). Each cache includes a queue for each class of data. By including a queue for each class of data, the egress buffer can provide quality of service functionality.

In paragraph 0035 on pages 12 and 13:

Data flow control is described in greater detail in U.S. Patent application number 09/812,985 [09/XXX,XXX (Atty. Docket No. P017)] filed March 19, 2001 [_____], entitled "METHOD AND SYSTEM FOR SWITCH FABRIC FLOW CONTROL," which is assigned to the corporate assignee of the present U.S. Patent application and incorporated by reference herein.

IN THE CLAIMS

1. (Amended) A network switch having an asynchronous mesh to transfer data from ingress interfaces to egress interfaces, the ingress interfaces to receive data from external sources and to selectively and asynchronously transmit the data across the asynchronous mesh to the egress interfaces, the egress interfaces to receive data from the asynchronous mesh and to transmit the data to external destinations.